

Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Wilsons Creek

Waterbody Segment at a Glance:

County: Christian, Greene
Nearby Cities: Springfield
Length of impairment: 18 miles
Pollutant: Unknown toxicity
Source: *

*The U.S. Environmental Protection Agency did not specify a source for this listing



TMDL Priority Ranking: Medium

Description of the Problem

Beneficial uses of Wilsons Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health associated with Fish Consumption

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

- The impairment of Wilsons Creek is based on exceedence of the general criteria contained in Missouri's Water Quality Standards (WQS)10 CSR 20-7.030 (3)(D) and (G). These criteria state:
 - Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
 - Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

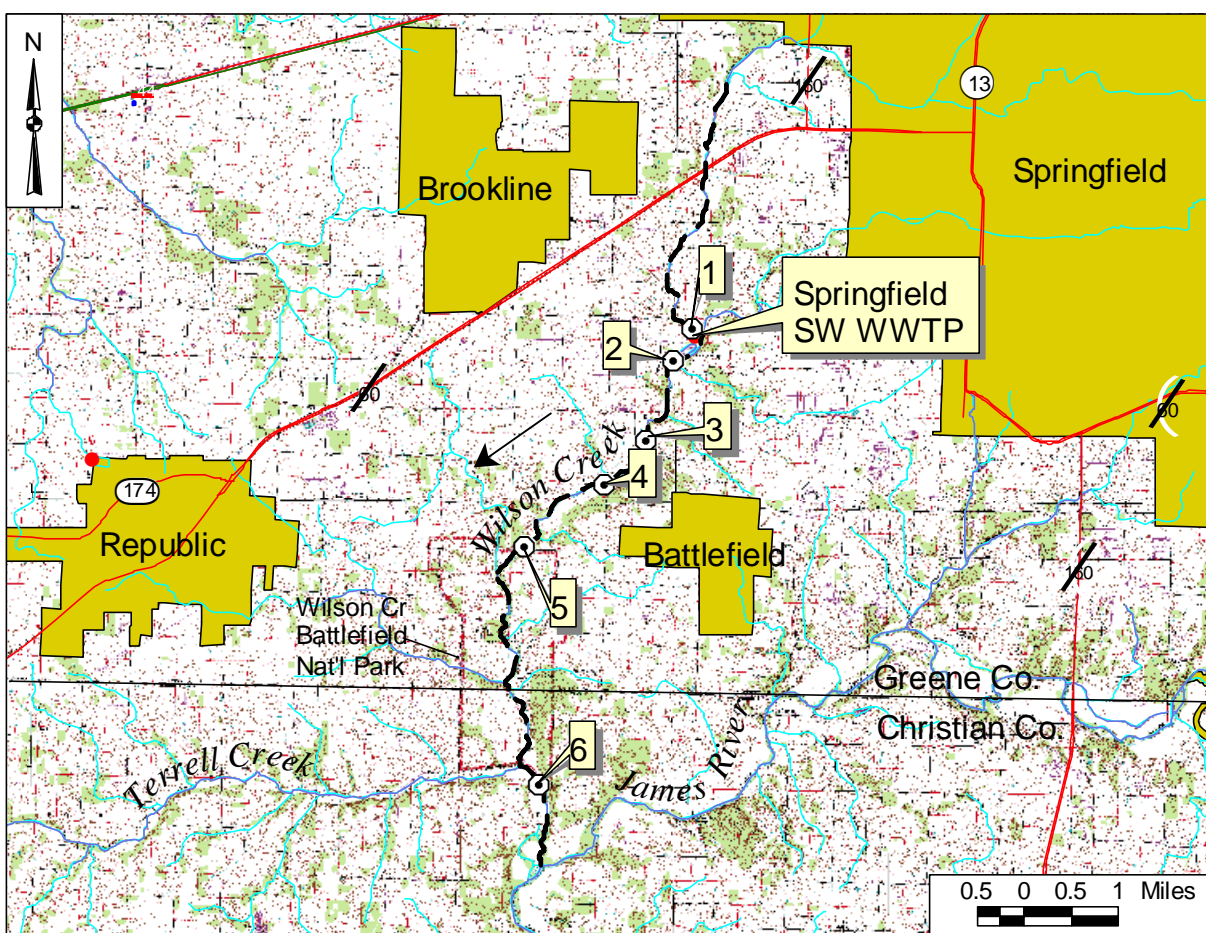
Background Information and Water Quality Data

Wilsons Creek is one of the largest tributary streams in the James River system and it drains much of the city of Springfield. It flows west and south of the city, passes through the Wilsons Creek National Civil War Battlefield, and joins the James River about eight miles south of the city. Wilsons Creek is on the 303(d) list for unknown toxicity. According to sampling done by the Missouri Department of Conservation and biologists at City Utilities of Springfield, evidence of toxicity includes very low diversity of fish and aquatic invertebrate animals. Direct toxicity testing of waters by the National Park Service in 1989 found toxicity in both Wilsons Creek and South Creek.

In 2000, the U.S. Geological Survey completed a study of water quality of Wilsons and Pearson creeks during normal and stormwater flow conditions. This study analyzed waters for such toxicants as heavy metals, pesticides and other organic chemicals. It revealed the presence of many potentially toxic chemicals. However, none of these chemicals were found in concentrations large enough to exceed state standards for protecting aquatic life. Meanwhile, the Stormwater Permit for the City of Springfield was issued July 2002. After 18 months of monitoring the stormwater (a requirement of the permit), no exceedences of the WQS were noted and no toxicity discovered. The department met with Springfield officials in October 2004, and the city agreed to modify their monitoring to include toxicity testing modeled after the work being done on Hinkson Creek in Boone County. Hinkson Creek is also polluted by unknown toxicity. Using toxicity testing in that creek is successfully identifying potentially toxic parameters that are not usually analyzed. This approach will be applied to Wilsons and Pearson creeks to help identify the unknown pollutants.

Map and data tables may be found below.

Wilsons Creek near Springfield in Greene County, Missouri, with Sampling Sites



Impaired Segment



Direction of Flow

Site Index for Map (page 2)

- 1 – Near Brookline
- 2 – 0.5 mile below Springfield SW WWTP
- 3 – 1.6 miles below Springfield SW WWTP
- 4 – 2.3 miles below Springfield SW WWTP
- 5 – 3.5 miles below Springfield SW WWTP
- 6 – At Wilson Road

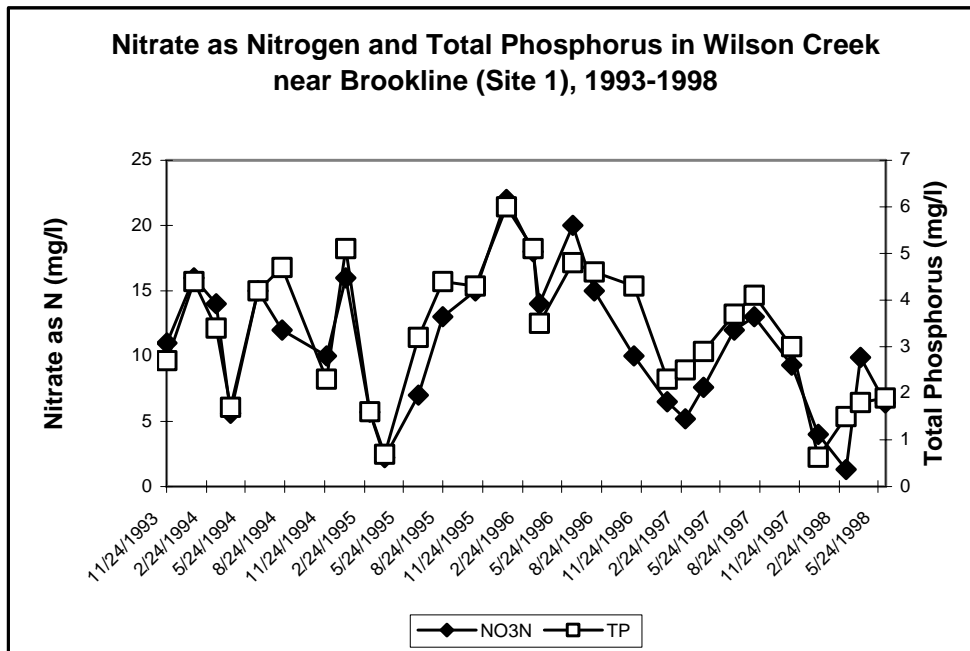
Table 1. Average Aquatic Invertebrate Diversity in Streams of the James River Basin, 1984-92. (after Youngsteadt, City Utilities of Springfield. 1994)

Stream	No. of EPT¹ Taxa	Biotic Index	#Taxa/100 Organisms
Upper James River	30	23	18
Upper Sawyer Cr.	28	25	19
Lower Sawyer Cr.	33	23	20
Turner Cr.	28	23	20
Upper Pearson Cr.	29	26	17
Lower Pearson Cr.	14	28	14
Lower James River	22	26	17
Wilsons-Fassnight Jordan creeks	3	36	8

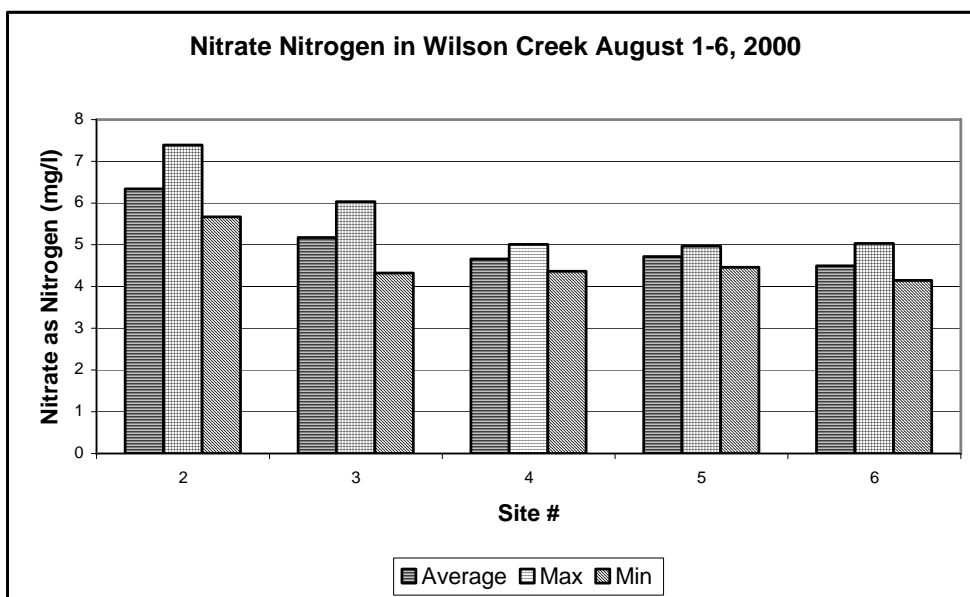
Table 2. Number of Fish Species Found in Sampling by the Missouri Department of Conservation in 1995. (after Kiner,1995)

Stream	No. of Fish Species Found
Upper James River	15-19
Wilsons Creek	0
Finley Creek	8-21
Crane Creek	5-7
Flat Creek	13-23
Lower James River	13

¹ EPT=Ephemeroptera, Plecoptera and Trichoptera (Mayflies, Stoneflies and Caddisflies) are three groups of pollution sensitive insects living in streams.



Source: U.S. Geological Survey



Source: Missouri Department of Natural Resources

For more information call or write:

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